

## Abstract

5 CIRCUIT ARRANGEMENT AND METHOD FOR GENERATING AN X-RAY  
TUBE VOLTAGE

A circuit arrangement for generating an x-ray tube voltage is described, comprises an inverse rectifier  
 10 circuit ( $G_{si}$ ) for generating a high-frequency alternating voltage, a high-voltage generator ( $G_{su}$ ) for converting the high-frequency inverse rectifier into a high voltage for the x-ray tube, and a voltage controller ( $G_{RU}$ ), which based on a deviation of an actual x-ray tube voltage ( $V_U(t)$ ) from  
 15 a set-point x-ray tube voltage ( $W_{U(t)}$ ) generates a first controlling variable value ( $Y_{U(t)}$ ) for a controlling variable for the inverse rectifier circuit ( $G_{si}$ ). The circuit arrangement further comprises a measurement circuit for measuring an oscillating current ( $i_{sw(t)}$ ),  
 20 connected to one output of the inverse rectifier circuit ( $G_{si}$ ) of the high- frequency alternating voltage, an oscillating current controller ( $G_{RI}$ ), which based on a deviation of an ascertained actual oscillating current value ( $V_I(t)$ ) from a predetermined maximum oscillating  
 25 current value ( $W_{I\_max}$ ), generates a second controlling variable value ( $Y_{I(t)}$ ). Further, a switching device is connected downstream of the voltage controller ( $G_{RU}$ ) and the oscillating current controller and compares the first controlling variable value ( $Y_{U(t)}$ ) and the second  
 30 controlling variable value ( $Y_{I(t)}$ ) to send the lesser of the first and second controlling variable values ( $Y_{U(t)}$  and  $Y_{I(t)}$ ) onward as the resultant controlling variable value ( $Y(t)$ ) to the inverse rectifier circuit ( $G_{si}$ ).